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Dear Harold and Mike:

I have, albeit belatedly, read your chapter in Looze and would like to offer a few (self-serving?) suggestions regarding FeSV transforming genes and proteins:

The first report of gag fusion polyproteins by Bister and coworkers (1977) was followed closely by similar observations made by John Stephenson (Dec 1977) and myself (Feb 1978) regarding phosphorylated FeSV polyproteins. [Proc. Nat. Acad. Sci. 74: 5608 and 75: 1505]. Both of us used cat anti-FOCMA sera to identify these products and (wrongly) concluded that the polyproteins themselves contained FOCMA activity. Nonetheless, we correctly identified the "src" protein of FeSV and described both its size and phosphorylated nature. I also showed that the fusion protein appeared in pseudotype particles, an observation which allowed both Mariano and ourselves to subsequently raise antisera to v-fes determinants.

Other difficulties were that different strains of FeSVs contained at least two different genes (shown first by Frankel et al in 1979), and that both ST- and GA-FeSV encoded different gag-fes products. Both Barbacid's lab (as cited on page 1063) and my own [not cited: Ruscetti, S.K., Turek, L.P., and Sherr, C.J. (1980) Three independent isolates of feline sarcoma virus code for three distinct gag-x proteins. J. Virol. 35: 259-264] came to the same conclusions. Note also that these two papers also describe the gag-fms products mentioned on page 1065.

After some discussion between us, Mariano wrote to you in an attempt to clarify descrepancies between results in our labs and in John Stephenson's regarding ST- and GA- polyproteins. I similarly discussed these data with John Coffin to avoid any possible problems regarding polyprotein assignments, and, in addition, offered the name "fms" (instead of "mas") to designate the SM-FeSV gene. Mariano and I then agreed to accept fms in future publications, and he wrote to you regarding nomenclature at that time.

The first transformation-defective FeSV mutants were also isolated in my laboratory in 1980 by Ludvik Donner: [Donner et.al.(1980) Transformation-defective mutants of feline sarcoma virus which express a product of the viral src gene. J. Virol. 35: 129-140]. As indicated by subsequent studies performed in collaboration with Mariano, these were found to encode products lacking kinase activity. I can assure you that the work involved in isolating and characterizing the mutant genomes was far more taxing than the subsequent assay of their products for associated tyrosine kinase activity.

Mariano then went on to show that immunoprecipitates containing P180gag-fms and p120fms contained associated tyrosine kinase activity. I reviewed early drafts of this manuscript and cautioned him about his initial interpretation that v-fms was itself a kinase. A subsequent draft of the manuscript which was reviewed and accepted by JVI made the conservative claim that v-fms products could themselves be phosphorylated. Some of the control studies which Mariano included were submitted as a result of continued open discussions between our laboratories which marked our earlier collaboration.

You are probably aware that we have continued to devote much of our time to studies of SM-FeSV and its v-fms coded products. The observation that the polyprotein and its processed derivatives are glycosylated (Sherr et.al., 1980, cited in another context) has been confirmed and extended (Anderson et al, JVI, 1982). Francis Galibert's lab is also completing the sequence of the v-fms gene cloned here in 1982 (Donner et al, JVI).

From my own viewpoint, I find it discouraging not to be identified with certain of these findings. Your chapter represents a state-of-the-art review on transforming genes, and comes with the imprimatur of the UCSF department where many original findings have been made. My own laboratory, contrary to some notions, is quite small, and has over the last six years included a limited number of junior investigators and outside collaborators who deserve credit for their observations.

I have never written such a letter before, and only do so with some hesitation. Hopefully, you will find some merit to these arguments.

Very sincerely,

Charles J. Sherr, M.D., Ph.D.